

In the Claims:

This version of the claims replaces and supercedes all prior versions of the claims.

1. (Currently Amended) A mobile phone having at least one main clock system and operating based on a main clock signal of said main clock system, wherein said main clock system comprising:

a main counter for counting main clocks of said main clock signal; and

power saving means for stopping generation of said main clock signal for a time period, while counting wait clocks of a wait clock signal, for restarting the generation of said main clock signal after the time period, and for controlling said main counter said main counter based on the counted wait clocks as if said main counter always counts said main clocks of said main clock signal

wherein said power saving means comprises a correction control means for counting said wait clocks of said wait clock signal for the time period during which the generation of said main clock signal is stopped, and for correcting a count value of said main counter based on the counted wait clocks, said correction control means comprises:
a single counting means for counting said wait clocks of said wait clock signal for the time period during which the generation of said main clock signal is stopped;

calculating means for calculating said main clocks while the generation of said main clock signal is stopped; and
setting means for correcting the count value of said main counter based on the calculated main clocks.

2. (Currently Amended) The mobile phone according to claim 1, wherein said power saving means further comprises:

stop control means for stopping the generation of said main clock signal;

~~correction control means for counting said wait clocks of said wait clock signal for the time period during which the generation of said main clock signal is stopped, and for correcting a count value of said main counter based on the counted wait clocks; and~~

restart control means for restarting the generation of said main clock signal after said time period elapses, such that said main counter counts said main clocks from the corrected count value.

3. (Original) The mobile phone according to claim 1, wherein a frequency of said main clock signal is larger than a frequency of said wait clock signal.

4. (Original) The mobile phone according to claim 1, wherein the time period during which the generation of said main clock signal is stopped is predetermined.

5. (Cancelled)

6. (Currently Amended) The mobile phone according to claim 1 [[5]], wherein said calculating means comprises:

ratio means for determining a frequency ratio of a frequency of said main clock signal to a frequency of said wait clock signal;

read means for reading out a count value from said main counter when the generation of said main clock signal is stopped; and

means for calculating said main clocks while the generation of said main clock signal is stopped, based on the counted wait clocks of said wait clock signal.

7. (Original) The mobile phone according to claim 6, further comprising:

a battery; and

first driving means for driving said ratio means when a voltage of said battery changes.

8. (Original) The mobile phone according to claim 6, further comprising:

temperature sensor; and

second driving means for driving said ratio means when said temperature sensor senses change of a temperature of said mobile phone.

9. (Currently Amended) The mobile phone according to claim 1 comprising first and second main clock systems, each of which is same as said main clock system.

10. (Original) A mobile phone according to claim 9, wherein said wait clock signal is shared by said first and second main clock systems.

11. (Currently Amended) A mobile phone having at least one main clock system, said main clock system comprising:

a main clock generator which generates a main clock signal;

a single main counter which carries out a counting operation of main clock of said main clock signal in response to said main clock signal generated by said main clock generator; and

a processor which stops the counting operation of said main counter by stopping the generation of said main clock by said main clock generator before entering a waiting operation and changes a count value of said main counter as if the counting operation of said main counter has been not stopped when going out of the waiting operation.

12. (Original) The mobile phone according to claim 11, wherein said processor comprises:

a wait timer which carries out a counting operation of wait clocks of a wait clock signal in response to a wait clock signal for a predetermined time corresponding to a time period during which the generation of said main clock signal is stopped; and

a CPU which operates based on the count value of said main counter in response to said main clock signal.

13. (Original) The mobile phone according to claim 12, wherein said wait timer which stops the operations of said main counter and said CPU by stopping the generation of said main clock signal by said main clock generator in response to an instruction from said CPU, and controls said main clock generator to restart the generation of said main clock signal and said CPU to change a count value of said main counter, after said predetermined time elapses.

14. (Original) The mobile phone according to claim 12, wherein said CPU changes the count value of said main counter by adding data corresponding to the number of said main clocks while the counting operation of said main counter is stopped, to the count value of said main counter.

15. (Original) The mobile phone according to claim 14, wherein said CPU calculates said data to be added, based on said wait clocks counted by said wait timer during said predetermined time.

16. (Original) The mobile phone according to claim 15, wherein said processor further comprises:

a clock precision unit which holds a ratio of a frequency of said main clock signal to a frequency of said wait clock signal, and

wherein said CPU calculates said data by multiplying said wait clocks counted by said wait timer by said ratio held by said clock precision measuring unit.

17. (Original) The mobile phone according to claim 12, wherein said predetermined time is set in said wait timer by said CPU before said wait timer stops the generation of said main clock signal by said main clock generator.

18. (Original) A mobile phone having two main clock systems, each of which comprises:

a main clock generator which generates a main clock signal;

a main counter which carries out a counting operation of main clock of said main clock signal in response to said main clock signal generated by said main clock generator; and

a processor which stops the counting operation of said main counter by stopping the generation of said main clock by said main clock generator before entering a waiting operation and changes a count value of said main counter as if the counting operation of said main counter has been not stopped when going out of the waiting operation.

19. (Original) The mobile phone according to claim 18, wherein said processor comprises:

a wait timer which carries out a counting operation of wait clocks of a wait clock signal in response to a wait clock signal for a predetermined time corresponding to a time period during which the generation of said main clock signal is stopped; and

a CPU which operates based on the count value of said main counter in response to said main clock signal.

20. (Original) The mobile phone according to claim 19, wherein said wait timer is shared by said two main clock systems.

21. (Currently amended) A method of saving power consumption in a mobile phone having at least one main clock system and operating based on a main clock signal of said main clock system, wherein said method comprising the steps of:

(a) counting main clocks of said main clock signal using a first single counting means;

(b) stopping generation of said main clock signal for a time period, while counting wait clocks of a wait clock signal using a second single counting means;

(c) restarting the generation of said main clock signal after the time period; and

(d) restarting the counting operation of said main clock of said main clock signal from preset data corresponding to said counted wait clocks of said wait clock signal.

22. (Original) The mobile phone according to claim 21, wherein said step (b) comprises the step of:

(e) counting said wait clocks of said wait clock signal for the time period;

(f) calculating said preset data based on a count value of said main counter based on said counted wait clocks of said wait clock signal; and

(g) setting said preset data.

23. (Original) The method according to claim 21, wherein a frequency of said main clock signal is larger than a frequency of said wait clock signal.

24. (Original) The method according to claim 21, wherein the time period is predetermined.

25. (Original) The method according to claim 22, wherein said step (f) comprises the steps of:

(h) determining a frequency ratio of a frequency of said main clock signal to a frequency of said wait clock signal;

multiplying said counted wait clocks of said wait clock signal by said frequency ratio; and

adding the counted main clocks when the generation of said main clock signal is stopped, to the multiplying result.

26. (Original) The method according to claim 25, further comprising the step of:

carrying said step (h) when a voltage of a battery changes.

27. (Original) The method according to claim 25, further comprising the step of:

carrying said step (h) when a temperature of said mobile phone changes.

28. (New) A mobile phone comprising:

a first clock generator configured to generate a first clock signal;

a second clock generator configured to generate a second clock signal with a frequency lower than said first clock signal;

a first single counter configured to count said first clock signal;

a second single counter configured to count said second clock signal and to control said first counter to step and restart the counting operation of said first clock signal in response to said second clock signal.

29. (New) The mobile phone according to claim 28, wherein said second counter counts said second clock signal for a period during which said first counter does not count said first clock signal.

30. (New) The mobile phone according to claim 29, further comprising:

a processing unit configured to set a new count value, at a time when said first counter is restarted, to said first counter based on a counter value of said second counter of said second clock signal and a count value of said first counter at a time when said first counter is stopped.

31. (New) The mobile phone according to claim 29, wherein said first clock generator is controlled to stop generation of said first clock signal at a time for the period, and

said second counter controls said first clock generator to restart the generation of said first clock signal.

32. (New) The mobile phone according to claim 31, wherein said second counter controls said first counter to restart the counting operation of said first clock signal in response to said second clock signal after said first clock generator restarts the generation of said first clock signal.